EV.\_\_\_\_\_

DATE <u>March 25, 1988</u> (Revised May 31, 1988)

FMEA \*:60-S70-0790-04-FL13, FL103 thru FL126-02

END ITEM EFFECTIVITY:

X X X
OV102 OV103 OV104

MODEL NO: 570-0790-04

SUBSYSTEM: ECLSS

PART NUMBER: PART NAME: REF

REFERENCE DESIGNATION:

ME286-0066

In-line Filter

FL13

ME286-0068 Assembly

FL103 through FL126

CRITICALITY NUMBER: 2

FUNCTION:

To filter impurities and particle contamination from input test gas prior to orbiter servicing.

• • •

CRITICAL FAILURE MODE: Pass Contaminants.

CAUSE: Material deterioration.

#### FAILURE EFFECT ON:

- (A) END ITEM: Deterioration of filter element would preclude proper servicing by GSE assemblies.
- (B) INTERFACING SUBSYSTEM(S): Interconnected support GSE would not haul final filtration to screen and contamination before orbiter input.
- (C) ORBITER: Possible contamination of flight hardware by debris generated by filter breakdown.
- (D) PERSONNEL: No effect on personnel noted.

HAZARDS: Contamination of flight hardware by debris or particles.

DATE: March 25, 1988 REV : May 31, 1988

# ACCEPTANCE RATIONALE

#### DESIGN:

Review of assembly documents and Specification Material Cocument (SMD) MEZ85-0066, -0088 has provided design data points to be complied with for acceptance rationale.

A delta pressure of 400 psig with no filtration breakdown. Static proof pressure test of 1.5 times normal, burst pressure in excess of 4 times operational pressures encountered. No external leakage at 400 psig helium. Maximum of 25 micron filtration, and not to exceed 12 psig (50 psig for -0068) pressure differential across filtration element with any loss of filtration.

### TEST:

PRE-OPERATIONAL: Gas sampling of assemblies for debris (level 200 clean) prior to gas servicing.

### INSPECTION:

PRE-INSTALLATION: Per ME268-0066, ME268-0068, Per 5.1.2: The filter shall be examined to determine conformance to SCD in material, dimensions, construction and identification marking. All critical components coating, welding, threads, and chemical etch are verified at inspection. The filter element wasve pattern shall be in accordance with the manufacturer's drawing. Proof pressurization to 375 psig for 3 min, max leakage of 1E-4 SSC/min at 250 psig.

AGE LIFE: Per OMI S6013 the assembly is inspected annually (V6F23), for compliance to the material and assembly specifications.

### OPERATION:

Mechanical cut-off valves are available to isolate the filter elements if breakdown occurs.

### DETECTION: ..

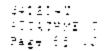
Pre-use and post servicing inspection of filters for possible loss of integrity or signs of wear.

## CORRECTION:

Isolation and replacement.

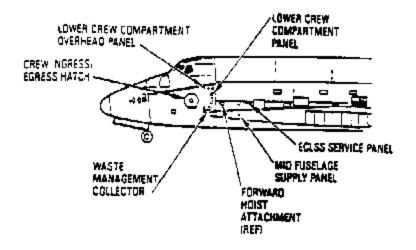
# PAILURE HISTORY:

Review of the PRACA Data Base has provided no failure history on the ME286-0066, or ME286-0068.



### ARPCS SET - MODEL #870-0790-04:

The set is provided to facilitate the checkout of the Orbiter Atmospheric Revitalization Pressure Control System (ARPCS). Interface from GSE is through the system control panels in the forward left side of the mid fuselage (See Figure 3.4). The set. consists of 25 micron in-line filters and connectors for attachment to system panels test ports and gas lines. connectors provide for checkout of system oxygen, oxidizer, water, and cabin pressure through ports on the lower crew compartment overhead panel. The set also provides for checkout of system oxygen and nitrogen gas pressures through ports on the mid fuselage supply panel, and checkout of system oxygen through ports on the lower crew compartment panel. QD MD13 with filter provides nitrogen for the potable/waste water tank through SYS A port on the ECLSS Service Panel. Individual component identification is given in table 3.4.



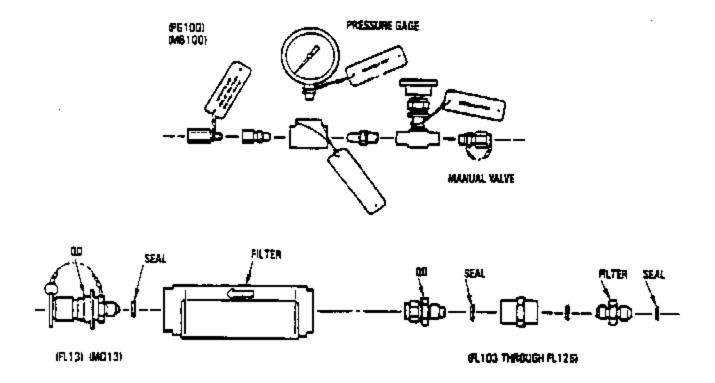


Figure 3.4. ARPCS GSE Set (\$70-0790-04)

REV	A
DATE	March 25, 1988
	(Revised May 31, 1988)

END ITEM: S70-0790-04, ARPCS SET

PART NUMBER/ REF. DESIGNATOR	PART NAME	QTY. (PER SYSTEM)	HDW. CRIT.
ME286-0066 FL13	In-line Filter	ı	2
ME286-006B FL103 thru FL126	In-line Filter	14	2

The OMRSD, File VI, is in development and at the completion of this FMEA/CIL each critical item will be reviewed against it. If necessary, the OMRSD will be revised to cover all applicable requirements for each critical item.

### TABLE 8-4 CRITICAL ITEMS LIST